## Glenn T. Seaborg Center Seminar

# Studies Of Gluconate Complexation With F-Elements In Aqueous Solutions


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**Wednesday, Jan 30, 2008**
**4:00 - 5:00 pm**
**Building 70A, Room 3377**


The behavior of gluconic acid and its complexation with heavy metals have recently received more attention due to the existence of gluconate in the Hanford high-level radioactive waste tanks. In this work, we investigated the protonation and lactonization behavior of gluconic acid, studied the thermodynamic properties of gluconate complexation with Ca(II), Nd(III), Np(V) and U(VI), and analyzed the coordination modes of those complexes. A number of experimental approaches were applied, including thermodynamic measurements, Electrospray Ionization coupled with Mass Spectrometry (ESI-MS), Nuclear Magnetic Resonance (NMR) spectroscopy and Extended X-ray Absorption Fine Structure (EXAFS). My talk will be focused on the thermodynamics and kinetics of gluconic acid lactonization and the "unusual" coordination behavior of gluconate with uranyl. The applicability of ESI-MS for speciation studies on heavy metal/ligand systems will also be discussed.



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